Health and Care Utilization of Transgender and Gender Nonconforming Youth: A Population-Based Study

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abstract

BACKGROUND: Transgender and gender nonconforming (TGNC) adolescents have difficulty accessing and receiving health care compared with cisgender youth, yet research is limited by a reliance on small and nonrepresentative samples. This study's purpose was to examine mental and physical health characteristics and care utilization between youth who are TGNC and cisgender and across perceived gender expressions within the TGNC sample.

METHODS: Data came from the 2016 Minnesota Student Survey, which consisted of 80 929 students in ninth and 11th grade (n = 2168 TGNC, 2.7%). Students self-reported gender identity, perceived gender expression, 4 health status measures, and 3 care utilization measures. Chi-squares and multiple analysis of covariance tests (controlling for demographic covariates) were used to compare groups.

RESULTS: We found that students who are TGNC reported significantly poorer health, lower rates of preventive health checkups, and more nurse office visits than cisgender youth. For example, 62.1% of youth who are TGNC reported their general health as poor, fair, or good versus very good or excellent, compared with 33.1% of cisgender youth (χ^2 = 763.7, P < .001). Among the TGNC sample, those whose gender presentation was perceived as very congruent with their birth-assigned sex were less likely to report poorer health and long-term mental health problems compared with those with other gender presentations.

CONCLUSIONS: Health care utilization differs between TGNC versus cisgender youth and across gender presentations within TGNC youth. With our results, we suggest that health care providers should screen for health risks and identify barriers to care for TGNC youth while promoting and bolstering wellness within this community.

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WHAT'S KNOWN ON THIS SUBJECT: Transgender and gender nonconforming (TGNC) adolescents are significantly affected by mental health disparities and have difficulty accessing and receiving health care compared with cisgender youth. Previous research in this field is limited by reliance on small, nonrepresentative, and adult samples.

WHAT THIS STUDY ADDS: TGNC adolescents reported poorer health, fewer health checkups, and more nurse visits than their cisgender peers. TGNC adolescents whose gender expression strongly matched their birth-assigned sex had better health and fewer long-term mental health problems compared with other gender presentations.

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Youth who are transgender have a gender identity and/or expression differing from societal expectations based on their birth-assigned sex, whereas youth who are cisgender have a gender identity aligning with their birth-assigned sex. Gender nonconforming describes individuals whose gender expression does not follow stereotypical conventions of masculinity and femininity and who may or may not identify as transgender.[1] Although research on youth who are transgender and gender nonconforming (TGNC) is in its nascence, studies indicate that adolescents who identify as TGNC versus cisgender experience significant mental health disparities.[2] Additional studies are needed to better understand other health risks, disparities, and access to health care among youth who are TGNC.

A paucity of health research examines TGNC adolescents' perceived gender expression (ie, the way others interpret a person's gender presentation along a spectrum from feminine to masculine). The authors of the gender minority stress and resilience model[3] theorize that misperceptions of a person's gender expression may result in a young individual feeling as if their gendered experience is negated or not affirmed. The young individual may also be placed at an elevated risk for harassment and victimization, which in turn may contribute to a heightened risk for negative health outcomes, such as depressive symptoms, self-harm, posttraumatic stress, disordered eating, and suicidal ideation and attempts.[4–9] For example, Roberts et al[10] found that youth who reported childhood gender nonconformity were at heightened risk for depressive symptoms during adolescence and early adulthood compared with those reporting childhood gender conformity. Birth-assigned males who reported childhood gender nonconformity were at the greatest risk for bullying victimization and depressive symptoms.

This vulnerability for poorer health outcomes reveals the importance of access to affordable, competent health care services for youth who are TGNC. However, historical marginalization in health care settings and a lack of competent providers create barriers to treatment and contribute to delayed access to care and longer-term health consequences.[11–18] For example, Gordon et al[19] found that gender nonconformity was associated with an increased risk for problems with mobility, usual activities, pain or discomfort, anxiety, and depression. Health scores were lower for participants with moderate gender conformity and lowest for those with low gender conformity when compared with participants reporting high gender conformity. Given the limited research on perceived gender nonconformity and health outcomes, Wylie et al[20] emphasized the importance of assessing perceived gender expression as a determinant of health disparities, particularly in population-based studies.

Previously, researchers have most often dichotomized gender into binary categories (exclusively masculine [man or boy] or feminine [woman or girl],[13] which minimizes the complexity of TGNC identities.[21] In a recent study, researchers found that 41% of a Canadian TGNC sample identified as gender nonbinary (ie, identifying as both, neither, or somewhere between masculine and feminine), which illustrates the importance of investigating the heterogeneity of gender identities and expressions among this group.[22] Health researchers who do not incorporate options to indicate nonbinary gender identities and expressions are at risk for having categories that misclassify or exclude certain gender diverse participants.[21] This categorical invisibility and erasure of diverse gender identities and expressions contribute to a lack of knowledge and training for health care providers and thereby place youth who are TGNC at risk for poorer health outcomes. In the current study, we address these concerns and illuminate health-related disparities in this underserved youth population.

Limitations in the extant research include reliance on samples of adults,[2] convenience samples, and small sample sizes. Population-based studies with large samples of adolescents are needed to generalize findings and make accurate comparisons between gender identity groups (TGNC versus cisgender). Our purpose in this study was to examine the prevalence of mental and physical health concerns and health care utilization among youth who identify as TGNC versus cisgender and across perceived gender expressions within our TGNC sample, using a large-scale, population-based sample.

METHODS

Data Source and Study Design

Data are from the Minnesota Student Survey (MSS), a statewide surveillance system coordinated by the Departments of Education, Health, Human Services, and Public Safety that is used to assess health and well-being among select grades of public school students. In 2016, 85% of the state's school districts participated. Passive parental consent procedures were used in accordance with federal laws. The analytic sample was composed of 80 929 students in ninth and 11th grade who were asked about their gender identity. The University of Minnesota's Institutional Review Board determined that this secondary analysis of existing anonymous data was exempt from review.

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Survey Measures

Gender identity was assessed by using a modified version of the validated 2-item approach recommended by transgender health experts.[23–26] Birth-assigned sex was assessed by the question, "What is your biological sex?" (male or female), followed by gender identity: "Do you consider yourself transgender, genderqueer, genderfluid, or unsure about your gender identity?" (yes or no). Adolescents who provided an affirmative response to the gender identity measure comprised the TGNC group. Perceived gender expression was measured by combining 2 items validated with young adults[20] to create the following item: "A person's appearance, style, dress, or the way they walk or talk may affect how people describe them. How do you think other people at school would describe you?" (response options: very or mostly feminine, somewhat feminine, equally feminine and masculine, somewhat masculine, or very or mostly masculine).

Dependent variables included health status (general health, long-term physical health problems, long-term mental health problems, and staying home sick from school) and care utilization (nurse office visits and preventive medical and dental checkups). A description of these measures is presented in Table 1. Notably, response options for general health were dichotomized into "very good or excellent" versus "poor, fair, or good" because of a skewed distribution.

Demographics and personal characteristics included 4 variables. Students were asked their grade and to endorse 1 or more of 5 racial groups and whether they self-identified with a Hispanic ethnicity. Responses were combined to create a race and/or ethnicity variable (Hispanic or Latino; American Indian or Alaskan Native [non-Hispanic]; Asian [non-Hispanic]; Black, African, or African American [non-Hispanic]; Native Hawaiian or other Pacific Islander [non-Hispanic]; White [non-Hispanic]; and multiple race [non-Hispanic]). An indicator of poverty included whether students received free or reduced-price lunch at school. School location was coded as within or outside the 7-county Minneapolis and St. Paul metropolitan area.

TABLE 1 MSS Health Status and Health Care Utilization Measures

Measure	Survey Item	Dichotomized Responses
Health status		
General health	How would you describe your health in general?	1 = poor, fair, or good[a] 0 = very good or excellent
Long-term physical disabilities or health problems	Do you have any physical disabilities, or long-term health problems (such as asthma, cancer, diabetes, epilepsy, or something else)? Long-term means lasting 6 months or more	1 = yes 0 = no
Long-term mental health problems	Do you have any long-term mental health, behavioral, or emotional problems? Long-term means lasting 6 months or more	1 = yes 0 = no
Stayed home sick (last 30 days)	During the last 30 days, how many times have you. . .stayed home because you were sick?	1 = 1+ times 0 = none
Health care utilization		
Nurse office visits (last 30 days)	During the last 30 days, how many times have you. . .gone to the nurse's office?	1 = 1+ times 0 = none
Preventive medical checkup	When was the last time you saw a doctor or nurse for a checkup or physical examination when you were not sick or injured?	1 = during the last year[b] 0 = not in the last year
Preventive dental checkup	When was the last time you saw a dentist or dental hygienist for a regular checkup, examination, teeth cleaning, or other dental work?	1 = during the last year[c] 0 = not in the last year

[a] Response options for general health were dichotomized because of a skewed distribution.
[b] Following recommendations by the American Academy of Pediatrics for wellness checkups.[27]
[c] Following recommendations by the American Academy of Pediatric Dentistry for regular checkups.[28]

Data Analysis

Analyses were conducted by using IBM SPSS version 23 (IBM Corporation, Armonk, NY). First, χ^2 tests were used to compare demographic characteristics, health status, and care utilization measures between students who are TGNC and cisgender. A 2-sided significance level of .001 was selected to reduce type I error rate because of the large sample. Second, multiple analysis of covariance (MANCOVA) models were used to estimate least squares means of the 4 health status variables simultaneously and then the 3 care utilization variables simultaneously for TGNC students by their perceived gender expression while controlling for grade, free or reduced-price lunch, race and/or ethnicity, and school location. Pillai's trace value statistic was used to assess the significant effects of perceived gender expression and control variables on the dependent variables. For dichotomous dependent variables, adjusted least squares means can be interpreted as predicted probabilities. Analyses were conducted separately for birth-assigned male and birth-assigned female adolescents who are TGNC by using an α level of .05. Bonferroni tests were used to correct α for all post hoc comparisons between perceived gender expression groups.

RESULTS

Sample Characteristics

Participants included 2168 (2.7%) students who identified as TGNC

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and 78 761 (97.3%) students who identified as cisgender. As shown in Table 2, the TGNC sample included a higher proportion of those assigned female at birth, youth of color, and those receiving free or reduced-price lunch than the cisgender sample. No significant differences emerged between students in metropolitan versus nonmetropolitan locations.

Health Statuses and Care Utilization Between Adolescents Who Are TGNC Versus Cisgender

Almost two-thirds (62.1%) of youth who are TGNC reported their general health as poor, fair, or good as opposed to very good or excellent, which is nearly twice the rate among youth who identify as cisgender (33.1%, $P < .001$; Table 3). Over half (59.3%) of youth who are TGNC also endorsed having long-term mental health problems compared with 17.4% of cisgender youth ($P < .001$). Over half (51.5%) of youth who are TGNC reported staying home from school because of illness at least once in the past month (versus 42.6% of youth who are cisgender; $P < .001$). Youth who are TGNC visited the nurse's office more often and reported lower rates of preventive medical and dental checkups during the last year than their cisgender peers.

Health Status and Care Utilization by Birth-Assigned Sex and Perceived Gender Expression

Perceived gender expression among youth who are TGNC is shown in Table 4. We found that youth who are TGNC varied across perceived gender expressions. Notably, the prevalence of TGNC adolescents with an equally feminine and masculine perceived gender expression was highest for both those assigned male (29.3%) and assigned female (41.2%) at birth compared with other perceived gender presentations. In Table 5, we present predicted probabilities and pairwise comparisons for youth who are TGNC by perceived gender expression, stratified by birth-assigned sex. As indicated by Pillai's trace, there was a significant effect of perceived gender expression for students who are TGNC and assigned male at birth on health status measures ($P < .001$) after controlling for covariates. Statistically significant differences between at least 2 groups on general health and long-term mental health problems were indicated in our results.

TABLE 2 Demographic Characteristics of MSS Participants by Gender Identity ($N = 80\,929$)

	TGNC, *n* (%)	Cisgender, *n* (%)	*P*[a]
Birth-assigned sex			<.001
Male	684 (31.9)	40 014 (50.9)	
Female	1457 (68.1)	38 639 (49.1)	
Grade			.001
Ninth	1271 (58.6)	43 368 (55.1)	
11th	897 (41.4)	35 393 (44.9)	
Race and/or ethnicity			.001
American Indian or Alaskan Native, NH	44 (2.1)	805 (1.0)	
Asian, NH	181 (8.5)	4677 (6.0)	
Black, African, or African American, NH	140 (6.5)	4545 (5.8)	
Native Hawaiian or other Pacific Islander, NH	11 (0.5)	117 (0.1)	
White, NH	1257 (58.7)	55 962 (71.5)	
Multiple race, NH	252 (11.8)	5319 (6.8)	
Hispanic or Latino	255 (11.9)	6816 (8.7)	
Free or reduced-price lunch			.001
Yes	834 (38.8)	20 936 (26.8)	
No	1315 (61.2)	57 226 (73.2)	
Location			.148
Twin Cities metropolitan area	1188 (54.8)	41 921 (53.2)	
Nonmetropolitan	980 (45.2)	36840 (46.8)	

NH, non-Hispanic.

[a] χ^2 tests of associations were used to examine differences in demographic factors.

TABLE 3 Health Status and Care Utilization of MSS Participants by Gender Identity ($N = 80\,929$)

	TGNC ($n = 2168$), *n* (%)	Cisgender ($n = 78\,761$), *n* (%)	*P*[a]
Health status			
General health			<.001
Poor, fair, or good	1299 (62.1)	25 496 (33.1)	
Very good or excellent	793 (37.9)	51 504 (66.9)	
Long-term physical disabilities or health problems			<.001
Yes	522 (25.2)	11 633 (15.2)	
No	1551 (74.8)	65 050 (84.8)	
Long-term mental health problems			<.001
Yes	1220 (59.3)	13 304 (17.4)	
No	838 (40.7)	63 096 (82.6)	
Stayed home sick (last 30 days)			<.001
1+ times	1096 (51.5)	33 367 (42.6)	
None	1031 (48.5)	44 871 (57.4)	
Care utilization			
Nurse office visits (last 30 days)			<.001
1+ times	877 (41.2)	20 298 (25.9)	
None	1252 (58.8)	57 954 (74.1)	
Preventive medical check-up			<.001
During the last year	1248 (60.0)	49 570 (64.7)	
Not in the last year	832 (40.0)	27 052 (35.3)	
Preventive dental check-up			<.001
During the last year	1477 (71.1)	62 854 (82.0)	
Not in the last year	601 (28.9)	13 803 (18.0)	

[a] χ^2 tests of associations were used to examine differences in health status and care utilization.

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Pairwise comparisons revealed that participants perceived as equally feminine or masculine (49.2%) or somewhat masculine (57.5%) were significantly more likely to report poorer general health than those with a very masculine (32.1%) perceived gender expression. When compared with those with a very masculine perceived presentation (15.8%), all other perceived gender expression groups were more likely to report long-term mental health problems (range: 40.7%–45.7%). Although a significant effect for long-term physical disability or health problems ($P = .048$) was indicated in our results, no statistically significant between-group comparisons were found. By using Pillai's trace, a statistically significant effect of perceived gender expression on care utilization measures ($P = .52$) was not indicated after controlling for covariates.

For adolescents who are TGNC and were assigned female at birth, a significant effect of perceived gender expression on health status measures ($P = .001$) was indicated by using Pillai's trace after controlling for covariates. Pairwise comparisons revealed that participants with a somewhat feminine (69.5%), equally feminine and masculine (70.4%), or somewhat masculine (71.7%) perceived gender expression were significantly more likely to report poorer general health than those with a very feminine (54.0%) perceived gender expression. Compared with participants assigned female with a very feminine perceived gender expression (55.4%), participants with all other perceived gender expressions were more likely to report long-term mental health problems (range: 68.1%–76.7%). No other pairwise comparisons were statistically significant. The effect of perceived gender expression on care utilization measures was also not statistically significant.

TABLE 4 Perceived Gender Expression of TGNC Students by Birth-Assigned Sex ($n = 2095$)

	TGNC Students	
	Assigned Male at Birth ($n = 661$), n (%)	Assigned Female at Birth ($n = 1434$), n (%)
Perceived gender expression		
Very feminine	104 (15.7)	177 (12.3)
Somewhat feminine	100 (15.1)	327 (22.8)
Equally feminine and masculine	194 (29.3)	591 (41.2)
Somewhat masculine	132 (20.0)	243 (16.9)
Very masculine	131 (19.8)	96 (6.7)

Data for birth-assigned sex or perceived gender expression were missing for 73 cases.

DISCUSSION

Population-based research in which both binary and nonbinary gender categories are examined is essential for a more comprehensive understanding of health disparities and health care needs of adolescents who are TGNC.[13] In this study, we address research gaps related to health status and care utilization of youth who are TGNC by describing a variety of physical and mental health indicators in a large, population-based sample of adolescents and identifying perceived gender expression as an important factor in understanding health disparities for this understudied group.

We found that students who are TGNC reported significantly poorer health status, lower rates of preventive health checkups, and more visits to the nurse's office than their cisgender peers. Although youth who are TGNC reported an overall worse health status compared with their cisgender peers, nearly three-quarters of youth who are TGNC did not experience long-term physical disabilities or health problems, which is consistent with previous findings that this group typically does not struggle with chronic physical health concerns.[2] Over half of adolescents who are TGNC have received preventive medical and dental care; these rates are slightly lower than those reported previously, but with this information, we can continue to highlight the importance of health care providers addressing health risk while promoting wellness within this community.[29,30]

Among the TGNC sample, important differences emerged across perceived gender expressions by birth-assigned sex. Youth who are TGNC with perceived gender expressions that are incongruent or that somewhat deviate from societal expectations for their birth-assigned sex were at higher risk for poorer health outcomes. This is not surprising given the social pressures to conform to gender roles and stereotypes associated with one's birth-assigned sex and is consistent with previous studies.[10] Comparisons between perceived gender expression groups were not significantly different for any care utilization measure.

School nurses are uniquely positioned to promote, educate, and advocate for optimal health for students who are TGNC. For example, school nurses can promote antibullying policies and clubs such as Gay-Straight Alliances to improve school climate.[31,32] School nurses can assist adolescents by providing resources and information about gender identity and expression. When appropriate, school nurses can also discuss with parents of self-disclosing adolescents who are seeking support that family support is protective and rejection is potentially detrimental to health. In addition, nurses can assist with health promotion by referring to appropriate resources.[32]

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TABLE 5 Predicted Probabilities of TGNC Students' Health Status and Health Care Utilization, Stratified by Perceived Gender Expression and Birth-Assigned Sex (n = 2095)

	TGNC Assigned Male at Birth (n = 661)		TGNC Assigned Female at Birth (n = 1434)	
	Responses (n)	Predicted Probability (%)	Responses (n)	Predicted Probability (%)
Health status				
General health is poor, fair, or good	P = .003[a]		P = .001[b]	
Very feminine	82	49.2	163	54.0
Somewhat feminine	90	50.8	314	69.5
Equally feminine and masculine	177	49.2	564	70.4
Somewhat masculine	123	57.5	231	71.7
Very masculine	113	32.1	85	68.6
Long-term physical disability or health problems	P = .048		P = .418	
Very feminine	82	19.5	163	22.7
Somewhat feminine	90	35.8	314	24.9
Equally feminine and masculine	177	27.1	564	25.0
Somewhat masculine	123	29.0	231	25.5
Very masculine	113	18.8	85	33.9
Long-term mental health problems	P < .001[c]		P < .001[d]	
Very feminine	82	40.7	163	55.4
Somewhat feminine	90	44.6	314	68.1
Equally feminine and masculine	177	45.7	564	69.8
Somewhat masculine	123	42.8	231	76.7
Very masculine	113	15.8	85	73.2
Stayed home sick (last 30 days)	P = .210		P = .265	
Very feminine	82	50.9	163	48.3
Somewhat feminine	90	57.5	314	55.1
Equally feminine and masculine	177	48.6	564	55.4
Somewhat masculine	123	48.2	231	48.6
Very masculine	113	40.7	85	55.0
Care utilization				
Nurse office visits (last 30 days)	P = .947		P = .688	
Very feminine	81	34.0	163	47.4
Somewhat feminine	90	34.2	321	42.1
Equally feminine and masculine	178	34.5	571	42.5
Somewhat masculine	123	31.6	235	46.2
Very masculine	113	30.4	86	45.4
Preventive medical checkup	P = .558		P = .175	
Very feminine	81	51.5	163	69.4
Somewhat feminine	90	54.0	321	61.8
Equally feminine and masculine	178	57.6	571	61.3
Somewhat masculine	123	62.4	235	57.2
Very masculine	113	59.6	86	64.3
Preventive dental checkup	P = .059		P = .225	
Very feminine	81	63.8	163	74.7
Somewhat feminine	90	63.9	321	75.2
Equally feminine and masculine	178	64.9	571	71.9
Somewhat masculine	123	74.3	235	67.2
Very masculine	113	77.0	86	76.1

In these analyses, we controlled for free and/or reduced-price lunch, race and/or ethnicity, grade, and school location. α level set at .05. Post hoc tests used Bonferroni's correction to adjust α for all pairwise comparisons. Numbers do not sum to the sample size because of missing data on at least 1 variable.

[a] Post hoc analysis indicated significant differences between equally feminine and masculine and very masculine perceived gender expressions as well as somewhat masculine and very masculine perceived gender expressions.

[b] Post hoc analysis indicated significant differences between somewhat feminine and very feminine perceived gender expressions, equally feminine and masculine and very feminine perceived gender expressions, as well as somewhat masculine and very feminine perceived gender expressions.

[c] Post hoc analysis indicated significant differences between very masculine and all other perceived gender expression groups.

[d] Post hoc analysis indicated significant differences between very feminine and all other perceived gender expression groups.

Consistent with gender minority and resilience theory, individuals perceived as gender nonconforming may be vulnerable to discrimination and have difficulty accessing and receiving health care compared with their cisgender peers.[14,29,30,33] Perceived gender nonconformity may be a risk factor for minority stressors (eg, nonaffirmation, victimization, discrimination, or rejection), which may in turn elevate adverse health outcomes for these youth.[3,13] Youth who are perceived or identify as gender nonconforming or nonbinary must also overcome unique barriers to accessing affirming health care compared with other TGNC adolescents, such as mistrust of health care providers because of fear of the youth's own gender identity or expression being misunderstood.[34,35] These barriers contribute to delays in seeking services, which may result in poorer health outcomes. More research with a focus on differences across gender identities and expressions is needed to better understand associations contributing to health risk disparities among youth who are TGNC.

To our knowledge, this is the first large, population-based study of TGNC adolescents in the United States conducted to describe prevalence rates of health status and care utilization compared with cisgender youth and to explore perceived gender expression. Because of the census-like recruitment strategy in which all schools in the state were invited to participate, findings are more generalizable than results from previous studies in which convenience samples were used. The numerous measures of health status (including both mental and physical health) and care utilization are considerable strengths of the survey, with which we address a gap in the literature for youth who are TGNC.

Although valuable information about health status and care utilization

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for youth who are TGNC is provided in our results, it is important to note limitations. First, asking about biological sex may be confusing for some students more accustomed to the phrase "sex assigned at birth," which is commonly used in this population. Likewise, the measure of gender identity does not allow for differentiation of students who identify as transgender, genderqueer, or unsure. We were also unable to assess whether youth were interested in being perceived as a different gender, had received any gender-affirming medical interventions (ie, puberty blockers, gender-affirming hormones), or had socially transitioned to their affirmed gender, which may impact how their gender expression is perceived and how they feel about particular perceptions of their gender. Furthermore, we lack a measure of actual gender expression (ie, how youth perceive and present themselves in society through dress, mannerisms, and personal style). Instead, students were asked about how they think others at school perceive them, which might be interpreted as a question more reflective of gender affirmation than personal gender expression and/or presentation. Missing data (whether due to nonresponse or missed opportunities because of school absence) may result in an underestimation of TGNC identity and health status. Lastly, youth who are TGNC often use the bathroom in the nurse's office[36]; thus, students may have overreported the frequency of nurse office visits.

CONCLUSIONS

Health status and care utilization differ between youth who are TGNC versus cisgender and across perceived gender presentations. With our results, we suggest that health care providers should screen for health risks and identify barriers to care for youth who are TGNC while promoting and bolstering wellness within this community. Although youth who are TGNC generally appear healthy and many are using health care services, continued research and advocacy are needed to decrease barriers to care and improve health outcomes for these young people, particularly those whose perceived gender expressions transgress societal expectations. As such, it is important that providers develop competency to work with adolescents with diverse gender identities and expressions because health needs may differ across and within gender groups.

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ABBREVIATIONS

MSS: Minnesota Student Survey
TGNC: transgender and gender nonconforming

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